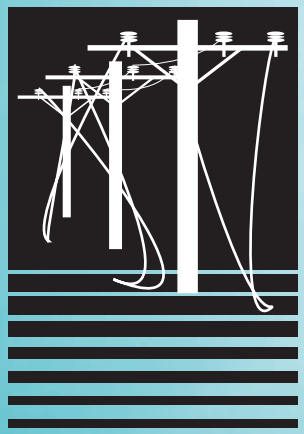
Power Usage and Conservation



Contents

Power Outages

Everyone experiences power interruptions from time to time. Many of these outages come at times of weather extremes or accompany various disasters. When the power is out, safety becomes a major concern. The following information is meant to help you when the lights go out

- Register life-sustaining equipment with your utility company.
- Make sure you have an alternate heat source and supply of fuel.
- Consider purchasing a generator, especially if someone in the house requires life-sustaining equipment that runs on electricity.
- When installing generators, follow the manufacturer's instructions very carefully.
- If your house is the only one without power, check your fuse box or circuit breaker panel. Turn off appliances before replacing fuses or resetting circuits.
- If power is out in the neighborhood, disconnect all electrical heaters and appliances to reduce the initial demand and protect the motors from possible low voltage damage.
- Unplug computers and other voltage-sensitive equipment to protect them against possible surges when the power is restored.
- Conserve water, especially if you are on a well.
- Keep your refrigerator and freezer doors closed. If the door remains closed, a fully loaded freezer can keep foods frozen for two days.
- Never use a charcoal barbeque inside the home.
- If you use candles for light, keep in mind they can cause a fire. It's far better to use battery-operated flashlights or glow sticks for alternative lighting.
- If you use a kerosene heater, gas lantern or stove inside the house, maintain ventilation to avoid a build up of toxic fumes.
- If your power is out, leave a light switch in the on position to alert you when services are restored.
- If you own an electric garage door opener, learn how to open the door without power.
- Prepare a power outage kit, or better yet, make it a part of your disaster preparedness kit. Consider having light sticks, flashlights, a battery-powered radio with extra batteries, and a wind-up clock as a part of the kit.
- Have a corded telephone available; remember cordless phones will not work when the power is out.

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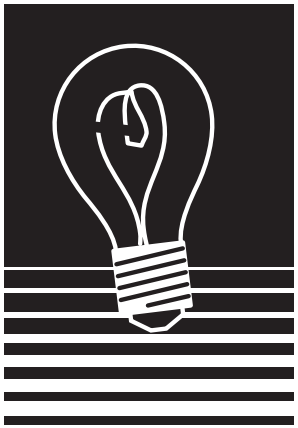

When purchasing a generator make sure you get one listed with the Underwriter's Laboratory (UL) or Factory Mutual (FM).

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Using a Generator During Power Outages

Read the labels on lighting, appliances, and equipment you plan to connect to the generator to determine the amount of power that will be needed to operate the equipment. For lighting, the power of the light bulb indicates the power needed. Appliances and equipment usually have labels indicating power requirements on them. Choose a generator that produces more power than will be drawn by the combination of lighting, appliances, and equipment you plan to connect to the generator, including the initial surge when it is turned on. If your equipment draws more power than the generator can produce, you may blow a fuse on the generator or damage the connected equipment.

Follow the directions supplied with your generator. Never use portable generators indoors, this includes inside a garage. Adequate ventilation is necessary when running the generator. Proper refueling measures, outlined in the owner's manual, must be carefully followed. Make sure you have properly working Carbon Monoxide (CO) alarms inside your home.

Be sure to let your generator cool down before refueling. You must store extra generator fuel in an approved safety can. Store fuel for the generator out of doors in a locked shed or other protected area. Do not store fuel in a garage, basement, or anywhere inside a home, as vapors can be released that may cause illness and are a potential fire or explosion hazard.

Connect the equipment you want to power directly to the outlets on the generator. Do not hook up a generator to your home's electrical service. Home-use (non-industrial) generators do not supply enough amperage to supply sufficient power for today's homes (that is, to run a furnace, lighting, appliances, and other electronic equipment). Unless your home's power supply was installed with a disconnect to the main power feeding lines, power you put into your home from a generator could "backfeed" into the main line and cause problems for the electrical utility company, your neighbors, or yourself. "Backfeeding" is supplying electrical power from a generator at the residence into the incoming utility lines. This occurs when the necessary equipment used to isolate the generator from the incoming power lines is not installed.

The 1999 National Electrical Code, published by the National Fire Protection Association, is a nationally recognized standard for safe electrical installations. The NEC does permit an interface between the normal power source (generally the electric utility) and an alternate power source (such as a standby or portable generator) provided that the proper transfer equipment that prevents "backfeeding" is used. Simply connecting a cord from the generator to a point on the permanent wiring system and "backfeeding" power is an unsafe method to supply a building during a utility outage.

Improper connection methods not only endanger the building occupants, but pose a serious hazard to electric utility workers as well.

There are a number of products available that will provide either an automatic or manual transfer between two power sources in a manner prescribed by the NEC. When selecting a product for this function, it should be one that has been evaluated for safe performance by a nationally recognized testing organization such as Underwriters Laboratories. The product must be installed according to the NEC, all applicable state and local codes, and the manufacturer's instructions. Homeowners should only attempt to install such products if they have a thorough knowledge of safe electrical installation practices for this type of equipment. Otherwise a qualified electrician should be contacted.

This technical sheet was prepared using materials from the American Red Cross and the National Fire Protection Association.

Special thanks to Tacoma Power and Puget Sound Energy for the helpful tips.
For more information check your power company.

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Power Convervation Tips

The following are tips that can help you save energy, thereby reducing your power bill.

Home Insulation

- Caulk, seal or weather-strip all seams, cracks and openings to the outside.
- Insulate the ceiling of your home. Either a blown loose-fill or fiberglass batts will do the job. Insulate the walls of your home. After ceiling and floor insulation, wall insulation is an important conservation measure to include.
- Insulate the floor of your home if it is above a cold crawl space or basement. Floor insulation helps control heating bills and increases your home's comfort.
- If windows are single-paned, for a low-cost temporary fix, consider installing inexpensive "tape up" interior storm windows. (This will seal air leaks and can reduce window heat loss by as much as 50 percent.)

Hot Water Pipe Insulation

- Install pipe insulation on all exposed hot water pipes.
- Install insulation on the first three feet of exposed cold water pipe that is connected to the water heater.

Heating

- Turn your thermostat to 68 degrees Fahrenheit during the day.
- Turn your heat to 55 degrees Fahrenheit at night when you go to bed or when you are not at home.
- Clean or change your furnace filters every two months.
- Close your drapes or blinds at night to keep heat inside and open them during the day to allow the sun in to help warm your home.
- When your fireplace is not in use, keep the damper shut and the glass door closed to minimize the amount of heat that escapes up the chimney.
- Keep exterior doors and windows closed when the heat is on.
- Keep your warm air outlets and heaters clean. Arrange your furniture and draperies so they don't block the airflow from the registers or heaters.
- Heat only the areas of your home you actually use.
- If you have a waterbed, set the heater at the lowest comfortable temperature. Place an insulation board under the heated waterbed. Keep the waterbed covered with a comforter.

Lighting

- Replace incandescent light bulbs with new energy efficient compact fluorescent lamps. Some of the new models are safe to use on dimmers and with electronic controls.
- Reduce the wattage of incandescent light bulbs that are used most of the time.
- Use timers or light sensors so security lights are on only when you want them lit.

Continued next page

Power Convervation Tips (continued)

Lighting (continued)

- Turn off the lights that are not needed and in unused rooms.
- Dust your light bulbs and clean the fixture covers to get the most light out of your fixtures.

Hot Water Heating, Washing and Drying

- Set your water heater thermostat at 120 degrees Fahrenheit or the “low” setting.
- Take showers rather than baths to reduce hot water usage.
- Inspect your pressure/ temperature relief valve and replace it if it is leaking.
- Wash only full loads in your dishwasher.
- Don’t use Rinse-Hold setting on your dishwasher. It wastes 3 to 7 gallons of hot water. Do use Air Dry setting and other power-saving features on your dishwasher.
- When purchasing a new clothes washer, consider models that save energy and water. They save 40 to 60 percent on energy and water consumption.
- If your clothes washer has a water level selection, use the lowest practical level. Wash full loads when possible. Use cold-water rinse for all loads.
- Try cold water washing using cold-water detergent.
- Clean the lint screen on your dryer before every load.
- Repair leaking or dripping faucets.
- Install efficient showerheads that use 2.5 gallons per minute or less.
- Turn off the breaker to the electric water tank at the main switch box if you are going to be gone a week or more (except in freezing weather).

Cooking

- For warming foods, use your microwave in place of your range oven.
- When you use your oven, cook more than one item at a time.
- Never use an oven or range burner to heat a kitchen.
- Use flat-bottom pans for best contact with the heat. Use tight fitting lids to keep the steam in the pan.
- Preheat your oven only 5 to 8 minutes when baking. Use a timer to reduce the number of times you open the oven door during baking.

Refrigeration, Freezing

- Keep your refrigerator at 38 degrees Fahrenheit and your freezer at 0 degrees Fahrenheit. Your freezer will work more efficiently if you keep it full.
- Defrost your freezer when ice or frost builds up to 1/2 inch or more.
- If you have an older refrigerator or freezer, listen to see if the motor/compressor runs constantly. If so, you may need repair service to check for low refrigerant. Another cause may be a leaky door gasket.
- Vacuum or brush your freezer or refrigerator coils at least every 6 months. Coils are on the back or underneath the appliance.
- Check your refrigerator and freezer door gaskets periodically for signs of deterioration, and replace them when necessary.
- Read the Energy Guide Label when purchasing new major appliances. Compare the energy savings of similar models. A wise investment now can mean many years of energy savings.